CLAIMS:

1. A catalyst composition for the oxidative dehydrogenation of a compound having at least two adjacent carbons atoms bonded to one another and each carbon atom having at least one hydrogen atom bonded thereto comprising

$$A_aB_bSb_cV_dAl_eO_x$$

wherein A is an alkali or alkaline earth metal; B is one or more optional elements selected from zinc, cadmium, lead, nickel, cobalt, iron, chromium, bismuth, gallium, niobium, tin and neodymium; and a is 0 to 0.3, b is 0 to 5, c is 0.5 to 10, d is 1, e is 3 to 10, $7 \leq a+b+c+d+e \leq 25$, and x is determined by the valence requirements of the elements present.

2. The catalyst of claim 1, wherein the catalyst composition is of an amorphous structure.

3. The catalyst of claim 1, having a surface area of from about 130 to about 150 meters squared per gram.

4. The catalyst of claim 1, wherein the catalyst was produced at a calcination temperature of from about 450 °C to about 650 °C.

5. The catalyst of claim 4, wherein to reach the calcination temperature an elevating temperature velocity of about 20 °C per minute was utilized.

6. The catalyst of claim 1, wherein the catalyst composition is on a support.

7. The catalyst of claim 6, wherein the support contains substantially no aluminum.

8. The catalyst of claim 7, wherein the support is silica, titania or zirconia.

9. The catalyst of claim 1, wherein a is from about 0.01 to about 0.1; b is from about 0.1 to about 1; c is from about 0.5 to about 3; e is from about 4 to about 7; and x is determined by the valence of the elements present.

10. The catalyst of claim 1, wherein A is at least one of the elements selected from the group consisting of potassium, cesium, magnesium and barium and wherein B is at least one of the elements selected from the group consisting of zinc, nickel, cobalt, iron, bismuth and niobium.

11. A method for oxidative dehydrogenation of a compound having at least two adjacent carbons atoms bonded to one another and each carbon atom having at least one hydrogen atom bonded thereto comprising contacting said compound with a catalyst comprising

$$A_aB_bSb_cV_dAl_eO_x$$

wherein A is an alkali or alkaline earth metal; B is one or more optional elements selected from zinc, cadmium, lead, nickel, cobalt, iron, chromium, bismuth, gallium, niobium, tin and neodymium; and a is 0 to 0.3, b is 0 to 5, c is 0.5 to 10, d is 1, e is 3 to 10, $7 \leq a+b+c+d+e \leq 25$, and x is determined by the valence requirements of the elements present in the presence of oxygen.

12. The method of claim 11, wherein the catalyst composition of an amorphous structure.

13. The method of claim 11, wherein the catalyst has a surface area of from about 130 to about 150 meters squared per gram.

14. The method of claim 11, wherein the catalyst was produced at a calcination temperature of from about 450 °C to about 650 °C.

15. The method of claim 14, wherein to reach the calcination temperature an elevating temperature velocity of about 20 °C per minute was utilized.

16. The method of claim 11, wherein the catalyst composition is on a support.

17. The method of claim 16, wherein the support is silica, titania or zirconia.

18. The method of claim 16, wherein the support contains substantially no aluminum.

19. The method of claim 11, wherein a is from about 0.01 to about 0.1; b is from about 0.1 to about 1; c is from about 0.5 to about 3; e is from about 4 to about 7; and x is determined by the valence of the elements present.

20. The method of claim 11, wherein A is at least one of the elements selected from the group consisting of potassium, cesium, magnesium and barium and wherein B is at least one of the elements selected from the group consisting of zinc, nickel, cobalt, iron, bismuth and niobium.